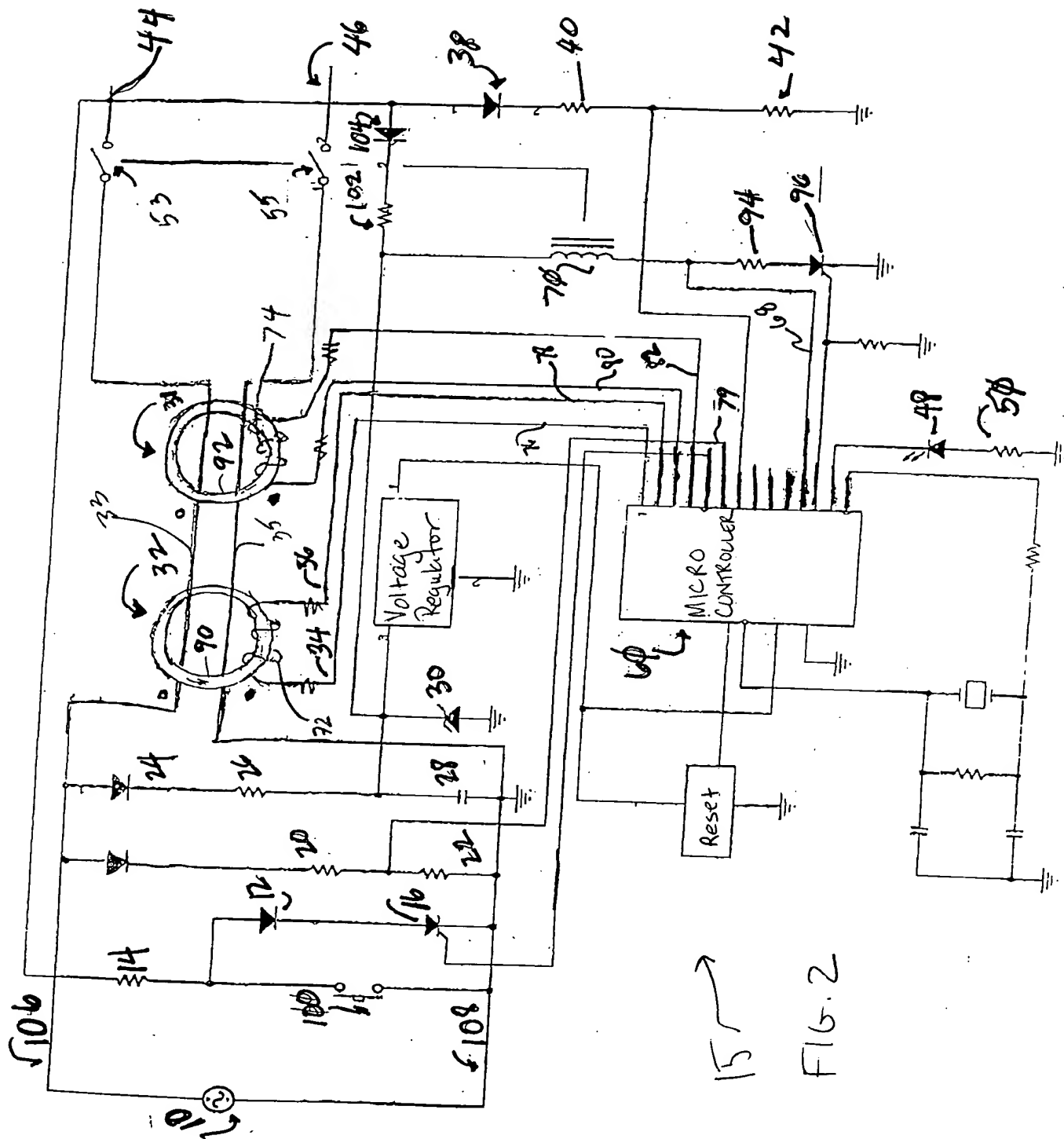


Fig. 1



```

graph TD
    Start([Start]) --> 200[Receive Test message from network]
    200 --> 202{Fault Sensed?}
    202 -- Yes --> 204[Microcontroller output to energize Latching Relay via driver circuit]
    204 --> 206[Open Hot and Neutral load contacts at  $\phi$  cross]
    206 --> 208[Send Trip message to network. End]
    202 -- No --> 210{Automatic self test?}
    210 -- Yes --> 214[Gate the leakage current test circuit SCR at a point in the AC line sinusoid such that the microcontroller gates the Latching Relay drive FET's and opens the Hot and Neutral load contacts momentarily (e.g. 10 ms to 100 ms) near the line zero cross.]
    210 -- No --> 212{Pushbutton depressed?}
    212 -- Yes --> 214
    212 -- No --> 218{Does Latching Relay Hot contact open?}
    214 --> 218
    218 -- Yes --> 220[Pass Test message sent over network]
    218 -- No --> 222[Indicate GFCI operational failure via LED or buzzer]
    222 --> 224[Fail Test message sent over network]
    220 --> Start
    224 --> Start

```

Fig 3

```

graph TD
    Start([Start]) --> Fault{Fault Sensed?}
    Fault -- Yes --> 304[Microcontroller output to energize Solenoid via driver circuit]
    Fault -- No --> 310{Automatic self test?}
    304 --> 306[Open Hot and Neutral load contacts at 0 cross]
    306 --> 308[End]
    310 -- Yes --> 314[Gate the leakage current test circuit SCR at a point in the AC line sinusoid such that the microcontroller gates the Solenoid SCR near an approaching zero cross.]
    310 -- No --> 312{Pushbutton depressed?}
    312 -- Yes --> 314
    312 -- No --> End([End])
    314 --> 318{Does Solenoid current monitor detect momentary current flow?}
    318 -- Yes --> Start
    318 -- No --> 322[Indicate GFCI operational failure via LED or buzzer]
    322 --> Start

```

FIG 4